

Breast Cancer Screening Series:

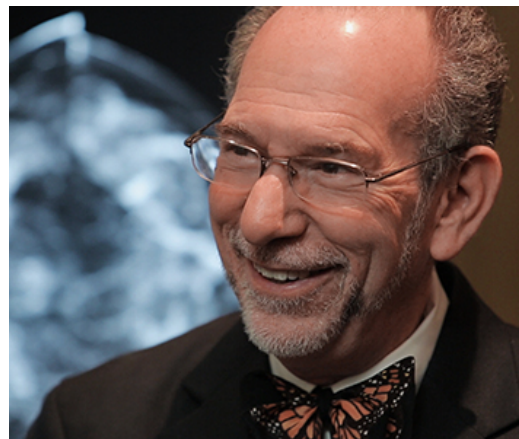
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THE WAR AGAINST BREAST CANCER, OR THE WAR AGAINST SCREENING MAMMOGRAPHY: WHICH IS THE LEGITIMATE WAR?

The ongoing attacks directed against screening mammography remain a source of bitter disappointment for those of us who are focused on another war on a daily basis, that against a real killer known as breast cancer. We have a powerful weapon in the high quality mammogram used as a screening method: we know this based on real science, stemming from the randomized controlled trials (RCT's) conducted over the past 30 years that tested the impact of early detection on the breast cancer death rate. The RCT is the most valid measure of the value of any test, and mammography screening has been measured by this method more than any other test in the history of medicine. The RCT works by evaluating an intervention (in this case, the mammogram) offered to a large group of randomly selected women (study group), and compares the outcome (in this case, death due to breast cancer) against a similar large randomized group not offered a mammogram (control group). The difference in death rates between the groups is then measured after a sufficiently long period of time, usually several years, to allow for a meaningful statistical analysis.



The largest RCT was conducted in Sweden between 1977 and 1985 [1,2], led by Drs. Laszlo Tabar and Gunnar Fagerberg, and showed a 31% decrease in deaths from breast cancer among the women offered mammograms versus those who were not. The benefit was actually much greater than 31%, as the study group included 15% of women who chose not to accept the invitation to have a screening mammogram, and the control group included some who chose to obtain a mammogram outside the RCT. When this study and other studies evaluated the impact on those women who actually attended screening regularly, the decrease in mortality was 43% [3]. Six other RCT's from the United States and Europe showed a similar benefit of decreased death rate in the groups offered screening

mammography [4], all of which proved overwhelmingly supportive of all women receiving screening mammograms on a regular basis. The benefit of screening was demonstrated in every age group beginning at age 40. As a result, screening mammography began in earnest around the world.

There was a notable exception: the so-called “Canadian studies”, one for women 40-49, and the other for women 50-59, both of which showed no benefit to the women being offered mammography [5,6]. However, these studies have been criticized time and time again by the scientific community for unacceptable mammography quality and improper randomization: any woman could volunteer to be included in the studies, and every woman was given a thorough physical examination by a trained examiner before being assigned to either the control group or the study group [7,8]. In fact, these studies were thrown out as true RCT’s by the World Health Organization in 2000 [9].

Despite serious flaws in the Canadian studies, it is these that individuals opposed to screening mammography have continually promoted as their “proof” that screening mammography does not work [10,11,12].

The RCT data are the most powerful we have for measuring the value of a medical test, and they have proved beyond a doubt that early detection and treatment of breast cancer in an early stage results in a significantly lower death rate from the disease. Real world validation can be found in the outcomes of the organized government-run mammography screening programs throughout the world, of which there are now more than 25 [13]. These have been operating on a large scale for many years as a result of the compelling findings of the RCT’s, and have now involved more than 20 million women. The results of virtually every one of these programs showed a 30-50% decrease in breast cancer death [14]. Again, the data are overwhelming that early detection through high quality screening mammography is making a difference, and that this benefit is appreciated in all age groups beginning at age 40 [15,16,17]. The explanation for this success: screening cuts back on the rate of advanced, less controllable cancers.

However, those opposing early detection – largely pseudo-skeptics with no experience in screening – have stubbornly refused to acknowledge the huge benefits of screening mammography as demonstrated in the RCT’s and the organized screening programs. Instead, they have focused on the so-called “harms” of mammography, most notably anxiety and overdiagnosis [10,11,12]. Although it is true that there is always some transient anxiety associated with having a mammogram, the anxiety created by a far-advanced breast cancer in a woman who had been advised not to obtain a screening mammogram would seem much greater; yet the opponents of screening focus only on the former.

The authors of the most recent attack on mammography screening [12] focus on overdiagnosis, claiming that there is a large number of cancers detected by mammography that would never surface as a potential killing cancer in the

woman's lifetime. This issue has already been taken seriously by the scientific community and has been addressed in numerous peer reviewed publications. All of these have shown that the demonstrated benefit of mammography in reducing the breast cancer death rate by 30-50% far outweighs the overdiagnosis (the claimed "harm") that may exist in no more than 1-5% of the cases [18]. Strangely enough, the anti-screening campaign focusing on the harms of mammography originates in Denmark, a country with one of the highest breast cancer death rates in Europe. Fortunately, mammography screening has now started in Denmark as well, and shows a 25% decrease in breast cancer deaths. [19].

The United States Preventive Services Task Force (USPSTF) 2009 and 2016 recommendations [20,21] also focused on the so-called "harms" of screening mammography, especially anxiety and overdiagnosis, as being greater than the benefit, i.e. preventing death from breast cancer. With virtually no valid data to support their claims of "harms", they in essence made a value judgment rather than a scientific judgment. They also focused on the data from the "Canadian" trials and refused to consider the powerful collected data from the multiple organized screening programs from around the globe [21]. The real irony of the above is that in 2014, the organized service screening programs involving 3 million women throughout Canada (representing 85% of the population) published their results, and showed at least a 40% reduction in breast cancer deaths among the screened women, including those in the 40-49 age group [16], a far cry from the results of the older "Canadian" trials.

Apparently, such results and other similar screening data failed to impress the USPSTF: in 2016, they recommended no screening mammography for women of average risk in their 40's or above age 74, and mammograms every two years for women 50-74. Even more perturbing, these recommendations have the power of law under the Affordable Care Act, and would have become the guidelines for both government and private institutions, had Congress not passed a two year moratorium, allowing women to continue to have mammograms covered without a deductible yearly beginning at age 40 [22]. This moratorium is due to expire at the end of 2017, so there is still considerable concern that many women will lose affordable access to screening mammography under these terms.

Women should keep in mind that breast cancer has been an uncontrollable disease for thousands of years, since the first case has been reported; the physicians in our generation are the very first in the history of medicine who can provide a life-saving tool for women with breast cancer: early detection and treatment at an early stage of the disease. It is also important to realize that the quality of the breast cancer screening tests has improved significantly since the RCTs were carried out. We now have digital mammography, which has been shown to find more cancers than the older film screen images [23], and several other new methods, such as tomosynthesis, whole breast ultrasound and MRI (magnetic resonance imaging), all of which find up to 20-30% more cancers than digital mammography does alone [24, 25, 26]. The women living in this generation are the very first in history who benefit from the advent of modern technology and thorough scientific validation of these new diagnostic tools. Early detection offers many advantages to women: fewer women with breast cancer will die from this dreaded disease,

less radical treatment methods can be used, which improve the life quality of the patient, and on average, the breast cancer patients live 16 years longer than those whose disease is detected late. Our task is to continue to train and update the physicians and nurses who detect, diagnose and treat breast cancer patients, and to inform women about the powerful life-saving effect of early detection [27].

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The opinions expressed in this article are the author's own and do not reflect the view of Cancer Knowledge Network or Multimed Inc.

Dr. Linver is a busy lecturer on mammography, having presented over 900 talks throughout the United States and in over 20 countries around the world. He is the author of over 60 published articles and chapters of textbooks on mammography, and is a strong political proponent of quality mammography. Toward this end, he spearheaded the successful campaign to enact mandated quality mammography screening legislation in New Mexico in 1990, and served on the original National Mammography Quality Assurance Advisory Committee to the FDA under the Mammography Quality Standards Act (MQSA) from 1994 to 1997. He helped author the A.H.C.P.R. document, "Quality Determinants of Mammography", and co-chaired the American Cancer Society's consensus conference in Chicago on screening mammography guidelines for pre-menopausal women in 1997. He is on the Board of Directors of the National Consortium of Breast Centers, past president of the New Mexico chapters of both the American College of Radiology and the American Cancer Society, and was a long-standing member of the American College of Radiology BI-RADS Committee. Dr. Linver is a board examiner in Breast Imaging for the American Board of Radiology, and serves on their Maintenance of Certification committee. He is a Fellow of the American College of Radiology, and was recently elected a Fellow of the Society of Breast Imaging, the first ever to receive this honor in the entire Mountain West. He is the recipient of the Nancy Floyd Haworth Memorial Lectureship "Spirit of Hope" award, the "People's Caring" award from People Living Through Cancer, the "Unsung Hero" award from the NCSL Women's Network, and the "Lifesaver" award from the American Cancer Society. He was chosen Albuquerque's "Best Doctor" in Radiology by the physicians of Albuquerque in the yearly "Top Doc" poll by Albuquerque Magazine in 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014 and 2015. In 2010 he was chosen as one of the 10 most effective Radiology educators in the United States by the physician members of AuntMinnie.com.